2010/0303586 by eliminating rig personnel from the rig floor during racking operations, still requires rig personnel to build stands. Neither of the systems in the references identified above assists in the make-up of stands. Both systems do not assist in the manipulations of tubulars from the catwalk to well center or an offline mousehole thus requiring rig personnel to utilize winches for the manipulation of tubulars from the horizontal to vertical position.

The present disclosure is directed to systems and methods that overcome one or more of the shortcomings of the prior art.

SUMMARY

According to a first aspect, there is provided an apparatus comprising: a first track portion extending along a pathway between a well center and a V-door on a drilling rig; a second track portion extending in a transverse direction relative to the first track portion , the second track portion extending to a position offline relative to the pathway between the well center and the V-door on the drilling rig; a curved track portion disposed between the first track portion and the second track portion : and a trolley configured to carry a racking device and configured to move along at least a portion of the first track portion, the second track portion, and the curved track portion between a position in the pathway between a well center and the V-door on a drilling rig and a position offline and out of the pathway between well center and the V-door on a drilling rig.

According to a second aspect, there is provided an apparatus comprising: a first track portion extending along a pathway between a well center and a V-door on a drilling rig; a second track portion extending in a transverse direction relative to the first track portion, the second track portion extending to a position offline relative to the pathway between the well center and the V-door on a drilling rig; a trolley parking portion aligned with one of the first track portion and the second track portion and translatable along the other of the first track portion and the second track portion; and a trolley moveable along said one of the first track portion and the second track portion aligned with the trolley parking portion, the trolley being configured to be carried on the trolley parking portion when the trolley parking portion is moved along the other of the first track portion and the second track portion.

According to a third aspect, there is provided a method of installing a parking system for a racker device on a mobile drilling rig, comprising: installing a first track portion extending along a pathway between a well center and a V-door on a drilling rig; installing a second track portion extending in a transverse direction relative to the first track portion, the

second track portion extending to a position offline relative to the pathway between the well center and the V-door on a drilling rig; installing a curved track portion connecting the first track portion and the second track portion; and attaching a trolley to the first track portion, the second track portion, and the curved track portion so that the trolley can move between a position in the pathway between a well center and a V-door on a drilling rig and a position offline and out of the pathway between well center and a V-door on a drilling rig.

According to a fourth aspect, there is provided a method of installing a parking system for a racker device on a mobile drilling rig, comprising: installing a first track portion extending along a pathway between a well center and a V-door on a drilling rig; installing a second track portion extending in a transverse direction relative to the first track portion, the second track portion extending to a position offline relative to the pathway between the well center and the V-door on a drilling rig; aligning a trolley parking portion with one of the first track portion and the second track portion in a manner that the trolley parking portion is moveable along the other of the first track portion and the second track portion; and attaching a trolley to one of the first track portion and the second track portion, the trolley being configured to be carried on the trolley parking portion when the trolley parking portion is moved along said other of the first track portion and the second track portion.

According to a fifth aspect, there is provided an apparatus comprising: a first track portion extending along a pathway between a well center and a V-door on a drilling rig; a second track portion extending in a transverse direction relative to the first track portion, the second track portion extending to a position offline relative to the pathway between the well center and the V-door on the drilling rig; a trolley parking portion translatable along one of the first track portion and the second track portion; and a trolley moveable along the other of the first track portion and the second track portion, the trolley being selectively attachable to the trolley parking portion and configured to be carried by the trolley parking portion when the trolley parking portion is moved along said one of the first track portion and the second track portion.

BRIEF DESCRIPTION OF THE DRAWINGS

The present disclosure is best understood from the following detailed description when read with the accompanying figures. It is emphasized that, in accordance with the standard practice in the industry, various features are not drawn to scale. In fact, the dimensions of the various features may be arbitrarily increased or reduced for clarity of discussion.

FIG. 1 is a schematic of an exemplary apparatus according to one or more aspects of the present disclosure.

FIG. 2 is a schematic of a top view of the apparatus of FIG. 1 according to one or more aspects of the present disclosure.

FIG. 3 is a schematic of an exemplary apparatus according to one or more aspects of the present disclosure showing an upper track portion.

FIG. 4 is a schematic of a top view of the apparatus of FIG. 1 according to one or more aspects of the present disclosure showing a lower track portion.

FIG. 5 is a schematic of an exemplary apparatus according to one or more aspects of the present disclosure showing a portion of the lower track portion of FIG. 4.

FIG. 6-1 is a schematic of an exemplary apparatus according to one or more aspects of the present disclosure showing a portion of the lower track portion of FIG. 4.

FIG. 6-2 is a schematic of an exemplary apparatus according to one or more aspects of the present disclosure showing a portion of the lower track portion of FIG. 4.

FIG. 7 is a schematic of an exemplary apparatus according to one or more aspects of the present disclosure showing an addition lower track portion.

FIG. 8 is a schematic of a top view of an exemplary apparatus according to one or more aspects of the present disclosure.

FIG. 9-1 is a schematic of an exemplary apparatus according to one or more aspects of the present disclosure showing a portion of an upper track portion.

CLAIMS

~~What is claimed is:~~

1. An apparatus ~~(100)~~ comprising:

a first track portion ~~(428)~~ extending along a pathway between a well center ~~(116)~~ and a V-door ~~(134)~~ on a drilling rig;

a second track portion ~~(432)~~ extending in a transverse direction relative to the first track portion ~~(428)~~, the second track portion ~~(432)~~ extending to a position offline relative to the pathway between the well center ~~(116)~~ and the V-door ~~(134)~~ on the drilling rig;

a curved track portion ~~(430)~~ disposed between the first track portion ~~(428)~~ and the second track portion ~~(432)~~; and

a trolley ~~(406, 412)~~ configured to carry a racking device ~~(104)~~ and configured to move along at least a portion of the first track portion, the second track portion, and the curved track portion between a position in the pathway between a well center and the V-door on a drilling rig and a position offline and out of the pathway between well center and the V-door on a drilling rig.

2. The apparatus of claim 1, wherein the trolley comprises wheels that roll along the first track portion, the second track portion, and the curved track portion, the wheels being configured to turn to follow the curved track portion.

3. The apparatus of claim 2, wherein the trolley comprises a set of wheels connected together in a manner that keeps them aligned as they turn to follow the curved track portion.

4. The apparatus of claim 1, wherein the first track portion, the second track portion, and the curved track portion include a slot disposed therein, the trolley having a portion extending through the slot to guide the trolley as it moves along the first track portion, the second track portion, and the curved track portion.

5. The apparatus of claim 1, further comprising a drive mechanism associated with the trolley to drive the trolley along at least a part of the first track portion, the second track portion, and the curved track portion.

6. The apparatus of claim 5, wherein the drive mechanism comprises:

a rack gear extending along the first track portion, the second track portion, and the curved track portion; and

a motor driving a pinion gear engaged with the rack gear, wherein turning the pinion gear advances the trolley along at least a portion of the first track portion, the second track portion, and the curved track portion.

7. The apparatus of claim 6, wherein the pinion gear is centrally disposed on the trolley and extends through a slot in the first track portion, the second track portion, and the curved track portion.

8. The apparatus of claim 1, wherein the second track portion is positioned to extend along a side of a racking fingerboard.

9. The apparatus of claim 1, wherein the first track portion, the second track portion, and the curved track portion are all flush with the rig floor.

10. The apparatus of claim 1, comprising a drive belt extending along at least a portion of the first track portion, the second track portion, and the curved track portion, the trolley being cooperatively connected to the drive belt in a manner that the drive belt moves the trolley along least a portion of the first track portion, the second track portion, and the curved track portion.

11. An apparatus comprising:

a first track portion ~~(530)~~ extending along a pathway between a well center ~~(116)~~ and a V-door ~~(134)~~ on a drilling rig;

a second track portion ~~(532)~~ extending in a transverse direction relative to the first track portion, the second track portion extending to a position offline relative to the pathway between the well center and the V-door on a drilling rig;

a trolley parking portion ~~(534)~~ aligned with one of the first track portion and the second track portion and translatable along the other of the first track portion and the second track portion; and

a trolley ~~(536)~~ moveable along said one of the first track portion and the second track portion aligned with the trolley parking portion, the trolley being configured to be carried on

the trolley parking portion when the trolley parking portion is moved along the other of the first track portion and the second track portion.

12. The apparatus of claim 11, wherein the first track portion comprises a single rail extending in a first direction and the second track portion comprises a single rail extending in a transverse direction.

13. The apparatus of claim 12, wherein the second track portion is fixed in place relative to the first track portion and is disposed at an end of the first track portion.

14. The apparatus of claim 11, wherein the trolley parking portion comprises parking rails moveable along the second track portion.

15. The apparatus of claim 14, wherein the parking rails comprise parallel rails extending along the pathway between the well center and the V-door on the drilling rig, and wherein the parallel rails are translatable along the second track portion.

16. The apparatus of claim 14, further comprising parallel rails extending in the transverse direction, and the trolley parking portion is configured to travel along the parallel rails.

17. The apparatus of claim 11, wherein the first track portion and the second track portion are substantially straight and substantially perpendicular to each other.

18. The apparatus of claim 11, wherein the trolley is configured to selectively attach to the trolley parking portion and the trolley parking portion is configured to carry the trolley.

19. The apparatus of claim 18, wherein the trolley is configured to selectively engage with one of the first track portion and the second track portion and is configured to selectively disengage therefrom and the second track portion and engage with the trolley parking portion.

20. The apparatus of claim 1, comprising a drive belt extending along at least a portion of the first track portion, the second track portion, and the curved track portion, the trolley being cooperatively connected to the drive belt in a manner that the drive belt moves the trolley along least a portion of the first track portion, the second track portion, and the curved track portion.

21. A method of installing a parking system for a racker device on a mobile drilling rig, comprising:

installing a first track portion ~~(428)~~ extending along a pathway between a well center and a V-door on a drilling rig;

installing a second track portion ~~(432)~~ extending in a transverse direction relative to the first track portion, the second track portion extending to a position offline relative to the pathway between the well center and the V-door on a drilling rig;

installing a curved track portion ~~(430)~~ connecting the first track portion and the second track portion; and

attaching a trolley ~~(406, 412)~~ to the first track portion, the second track portion, and the curved track portion so that the trolley can move between a position in the pathway between a well center ~~(116)~~ and a V-door ~~(134)~~ on a drilling rig and a position offline and out of the pathway between well center and a V-door on a drilling rig.

22. The method of claim 21, wherein the first track portion, the second track portion, and the curved track portion include a slot disposed therein, and

wherein attaching a trolley to the first track portion, the second track portion, and the curved track portion comprises arranging the trolley so that a portion of the trolley extends through the slot.

23. The method of claim 21, wherein attaching a trolley to the first track portion, the second track portion, and the curved track portion comprises engaging a gear on the trolley to a gear adjacent one of the first track portion, the second track portion, and the curved track portion.

24. A method of installing a parking system for a racker device on a mobile drilling rig, comprising:

installing a first track portion ~~(530)~~ extending along a pathway between a well center and a V-door on a drilling rig;

installing a second track portion ~~(532)~~ extending in a transverse direction relative to the first track portion, the second track portion extending to a position offline relative to the pathway between the well center ~~(116)~~ and the V-door ~~(134)~~ on a drilling rig;

aligning a trolley parking portion ~~(534)~~ with one of the first track portion and the second track portion in a manner that the trolley parking portion is moveable along the other of the first track portion and the second track portion; and

attaching a trolley ~~(536)~~ to one of the first track portion and the second track portion, the trolley being configured to be carried on the trolley parking portion when the trolley parking portion is moved along said other of the first track portion and the second track portion.

25. The method of claim 24, wherein the trolley parking portion comprises parking rails moveable along the second track portion.

26. The method of claim 25, wherein the parking rails comprise parallel rails extending along the pathway between the well center and the V-door on the drilling rig, and wherein the parallel rails are translatable along the second track portion.

27. The method of claim 24, wherein installing a second track portion comprises installing the second track portion perpendicular to the first track portion.

28. The method of claim 27, wherein the trolley parking portion is configured to carry the trolley.

29. An apparatus comprising:

a first track portion ~~(506)~~ extending along a pathway between a well center ~~(116)~~ and a V-door ~~(134)~~ on a drilling rig;

a second track portion ~~(508)~~ extending in a transverse direction relative to the first track portion, the second track portion extending to a position offline relative to the pathway between the well center and the V-door on the drilling rig;

a trolley parking portion ~~(520)~~ translatable along one of the first track portion and the second track portion; and

a trolley ~~(514)~~ moveable along the other of the first track portion and the second track portion, the trolley being selectively attachable to the trolley parking portion and configured to be carried by the trolley parking portion when the trolley parking portion is moved along said one of the first track portion and the second track portion.

30. The apparatus of claim 29, wherein the trolley disengages from said other of the first track portion and the second track portion when attached to the trolley parking portion.

31. The apparatus of claim 29, wherein the first track portion extends at a different elevation than the second track portion.

32. The apparatus of claim 29, wherein the trolley selectively engages the trolley parking portion.